

The listing of claims is as follows:

In the Claims:

1. (ORIGINAL) An apparatus for generating ultraviolet radiation, comprising:
 - a longitudinally extending microwave chamber capable of supporting standing microwave energy waves therein;
 - a longitudinally extending plasma bulb mounted within said microwave chamber; and
 - a pair of microwave generators coupled to said microwave chamber and capable of generating a pair of standing microwave energy waves within said chamber for exciting said plasma bulb to emit ultraviolet radiation from said chamber.
2. (ORIGINAL) The apparatus of claim 1 further comprising a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb and capable of overlapping said pair of standing microwave energy waves within said chamber generally along the longitudinal length of said plasma bulb.

3. (ORIGINAL) The apparatus of claim 2, wherein said microwave chamber comprises:

a pair of end walls;

a pair of side walls extending longitudinally between said pair of end walls;

a top wall; and

said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

4. (ORIGINAL) The apparatus of claim 3, wherein each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

5. (ORIGINAL) The apparatus of claim 3, wherein each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

6. (ORIGINAL) The apparatus of claim 1 further comprising:

a longitudinally extending, microwave transparent reflector mounted within said microwave chamber and capable of reflecting ultraviolet radiation emitted by said plasma bulb; and

a pair of waveguides directly coupling said pair of magnetrons to said microwave chamber, said microwave chamber having a pair of openings formed therein and each of said waveguides having an outlet port communicating directly with one of said openings in said microwave chamber.

7. (ORIGINAL) The apparatus of claim 6 wherein each of said openings has a cross-sectional area that is substantially equal to a cross-sectional area of one of said outlet ports.

8. (ORIGINAL) The apparatus of claim 6 further comprising a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb and capable of overlapping said pair of standing microwave energy waves within said chamber generally along the longitudinal length of said plasma bulb.

9. (ORIGINAL) The apparatus of claim 8, wherein said microwave chamber comprises:

a pair of end walls;

a pair of side walls extending longitudinally between said pair of end walls;

a top wall; and

said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

10. (ORIGINAL) The apparatus of claim 9, wherein each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

11. (ORIGINAL) The apparatus of claim 9, wherein each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

12. (ORIGINAL) An apparatus for generating ultraviolet radiation, comprising:

- a longitudinally extending microwave chamber;
- a longitudinally extending plasma bulb mounted within said microwave chamber;
- a pair of microwave generators coupled to said microwave chamber and capable of generating microwave energy waves within said chamber for exciting said plasma bulb to emit ultraviolet radiation from said chamber; and
- a pair of longitudinally extending tuning walls positioned on opposite sides of said plasma bulb and capable of tuning said microwave chamber to generally uniformly excite said plasma bulb along its length.

13. (ORIGINAL) The apparatus of claim 12, wherein said microwave chamber comprises:

- a pair of end walls;
- a pair of side walls extending longitudinally between said pair of end walls;
- a top wall; and
- said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

14. (ORIGINAL) The apparatus of claim 13, wherein each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

15. (ORIGINAL) The apparatus of claim 13, wherein each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

16. (ORIGINAL) The apparatus of claim 12 further comprising:

a longitudinally extending, microwave transparent reflector mounted within said microwave chamber and capable of reflecting ultraviolet radiation emitted by said plasma bulb; and

a pair of waveguides directly coupling said pair of magnetrons to said microwave chamber, said microwave chamber having a pair of openings formed therein and each of said waveguides having an outlet port communicating directly with one of said openings in said microwave chamber.

17. (ORIGINAL) The apparatus of claim 16 wherein each of said openings has a cross-sectional area that is substantially equal to a cross-sectional area of one of said outlet ports.

18. (ORIGINAL) The apparatus of claim 16, wherein said microwave chamber comprises:

a pair of end walls;

a pair of side walls extending longitudinally between said pair of end walls;

a top wall; and

said pair of tuning walls extending inwardly and upwardly from said pair of side walls toward said top wall.

19. (ORIGINAL) The apparatus of claim 18, wherein each of said tuning walls comprises a generally planar wall extending inwardly and upwardly from one of said side walls toward said top wall.

20. (ORIGINAL) The apparatus of claim 18, wherein each of said tuning walls comprises at least two generally planar walls extending inwardly and upwardly from one of said side walls toward said top wall.

21. (ORIGINAL) A method for generating ultraviolet radiation from a plasma bulb mounted longitudinally within a microwave chamber, comprising:

generating microwave energy waves from at least two sources; and
coupling the microwave energy waves into the microwave chamber
creating standing microwave energy waves longitudinally within the microwave
chamber that excite the plasma bulb to emit ultraviolet radiation from the chamber.

22. (ORIGINAL) The method of claim 21, wherein said step of coupling further comprises directly coupling the microwave energy waves into the microwave chamber.

23. (ORIGINAL) The method of claim 22, further comprising the step of overlapping the standing microwave energy waves within the chamber generally along the longitudinal length of the plasma bulb.

24. (ORIGINAL) The method of claim 22, further comprising the step of adjusting the phase relationship of the standing microwave energy waves within the microwave chamber.

25. (ORIGINAL) The method of claim 23, further comprising the step of adjusting the phase relationship of the standing microwave energy waves within the microwave chamber.
26. (ORIGINAL) The method of claim 21, further comprising the step of overlapping the standing microwave energy waves within the chamber generally along the longitudinal length of the plasma bulb.
27. (ORIGINAL) The method of claim 26, further comprising the step of adjusting the phase relationship of the standing microwave energy waves within the microwave chamber.
28. (ORIGINAL) The method of claim 21, further comprising the step of adjusting the phase relationship of the standing microwave energy waves within the microwave chamber.

29. (ORIGINAL) A method for generating ultraviolet radiation from a plasma bulb mounted longitudinally within a microwave chamber, comprising:
generating microwave energy waves from at least two sources; and
directly coupling the microwave energy waves into the microwave chamber for creating microwave energy waves longitudinally within the microwave chamber that excite the plasma bulb to emit ultraviolet radiation from the chamber.